Update: Indoor Air & Sub-Slab Sampling – Motorola 52nd Street Site

Phoenix, AZ
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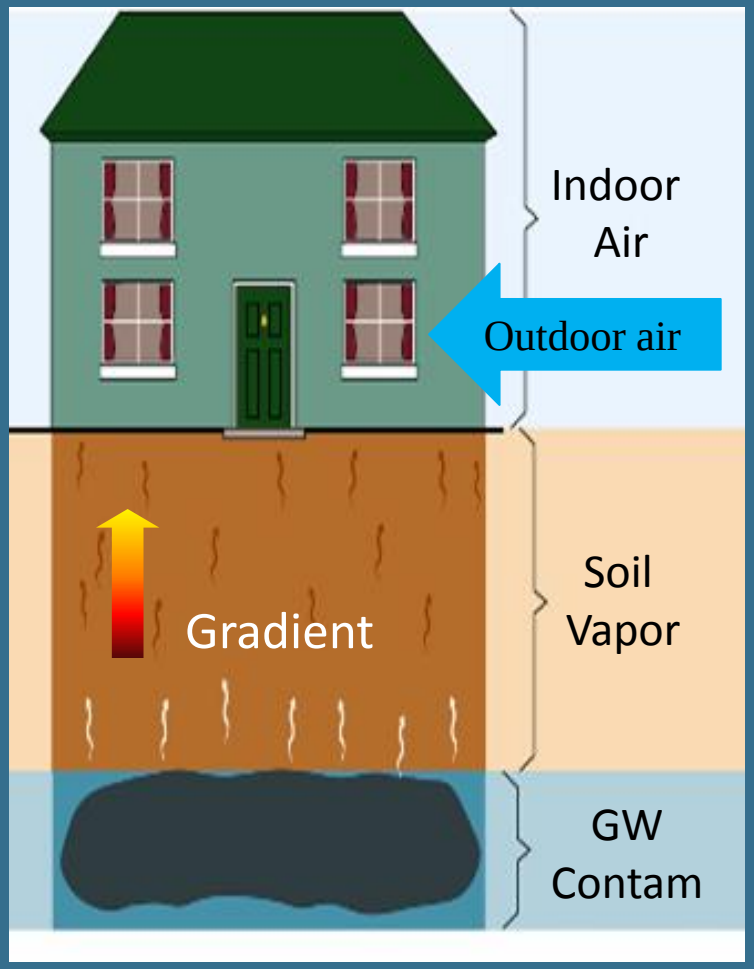
Outline

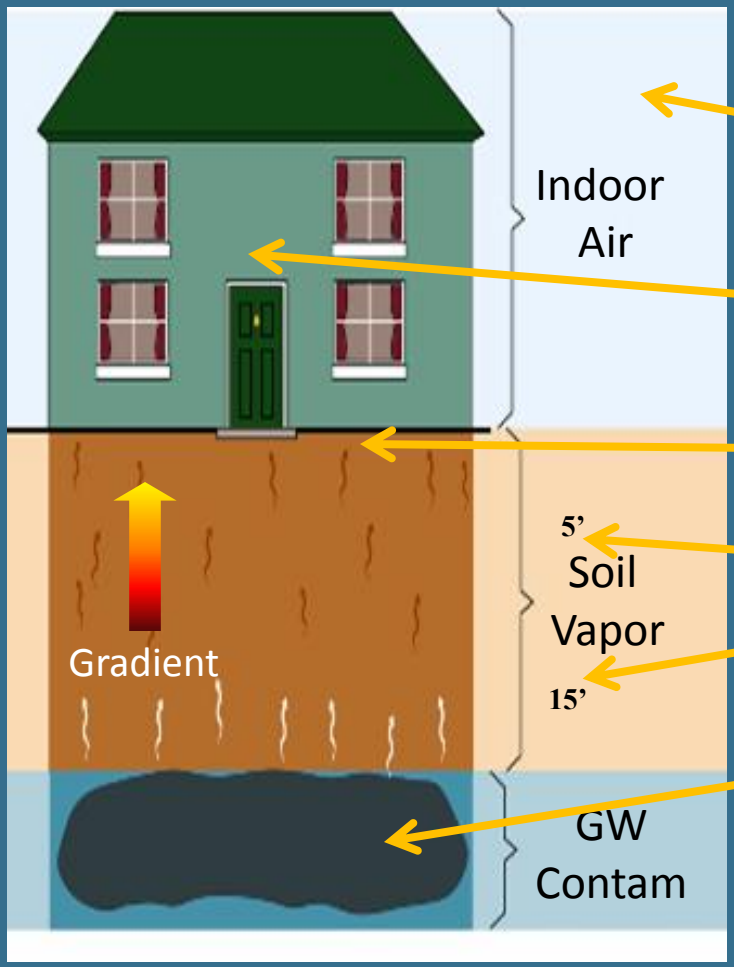
- Vapor intrusion basics
- New TCE toxicity info & soil gas screening levels (SGHHSLs)
  - Extension of vapor intrusion screening area
- Area-by-area presentation of results to date

Soil Gas and Indoor Air

- Vapor intrusion = soil gas entering overlying buildings
- Questions to address:
  - Is VI happening?
  - If so, are indoor air exposures of potential health concern?



Multiple Lines of Evidence



Vapor Intrusion?

- Outdoor air
- Indoor air
- Sub-slab
- Soil gas
- Groundwater

Use of Risk Range - Homes

TCE Protective Risk Range: **0.4 – 2 µg/m^3**

- < 0.4 µg/m^3 – Inhalation Risk Screening Level (IRSL)
  - Less than 1 in one-million lifetime cancer risk
  - No remediation unless potential for future VI
- 0.4 – 2 µg/m^3
  - Low risk: 1 - 5 in one-million lifetime cancer risk
  - Consider remediation if potential for future VI
- EPA's Goal: residential exposures less than 2 µg/m^3
  - > 2 µg/m^3 risks start to increase for both non-cancer effects and cancer

SGHHSLs Updated

Soil Gas Human Health Screening Levels (SGHHSLs)

- Used to help define areas for indoor air/sub-slab sampling
- New: SGHHSLs updated to incorporate revised TCE risk screening level (0.4 µg/m^3 lower end)
- TCE SGHHSLs:
  - Residential: 190 µg/m^3
  - Commercial/Industrial: 2500 µg/m^3
- Impact: Expanded areas for indoor air/sub-slab investigation

Updated IA & SS Results

- 3 Sampling Events:
  - July 2011 / October 2011 / February 2012
  - 77 houses/apartments
  - 5 commercial/industrial buildings
  - 2 schools
- Indoor air & sub-slab data validated
- Results represent testing in individual homes
  - No addresses or specific locations identified
  - Protect privacy of volunteers

Vapor Intrusion Study Areas

Lindon Park (23 Residences)

TCE – Indoor Air (22):

- 10 residences ND
- 10 below 0.4 µg/m^3 screening level
- 2 in 0.4 – 2 µg/m^3 protective risk range

TCE - Sub-Slab (23):

- 5 sub-slabs non-detect
- 18 detections

IA/SS sampling extended:

- Brill Street
- South of Culver

Updated TCE SGHHSL

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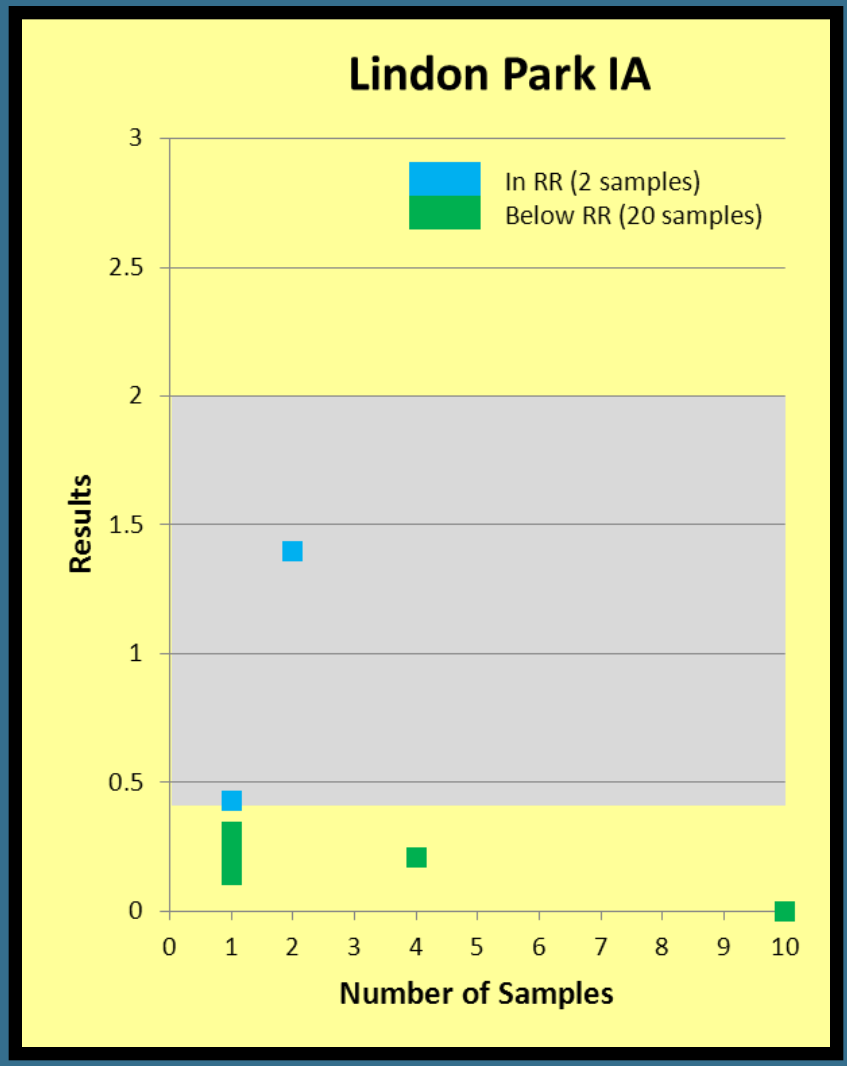

McDowell Southside (25 Residences)

TCE – Indoor (24):

- 6 residences ND
- 9 below 0.4 µg/m^3 screening level
- 7 within 0.4 – 2 µg/m^3 protective risk range
- 2 above protective risk range

TCE - Sub-Slab (25):

- 24 detections
- 1 building id'd for sub-slab mitigation
  - Elevated SS levels
- Additional residences identified to sample

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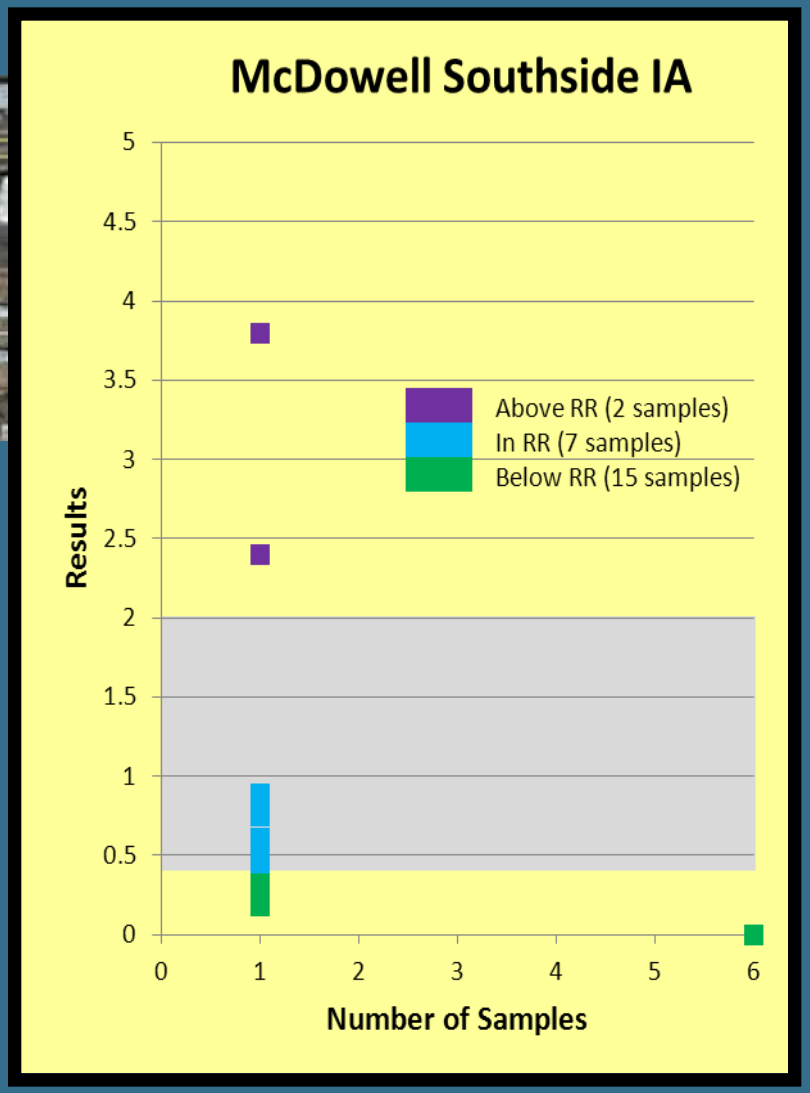

McDowell Northside (29 Residences)

TCE – Indoor (29):

- 7 residences ND
- 6 below 0.4 µg/m^3 screening level
- 5 within 0.4 – 2 µg/m^3 protective risk range
- 11 above protective risk range

TCE - Sub-Slab (28):

- 27 detections
- 15 buildings identified for sub-slab mitigation
  - Elevated SS levels
- Additional residences identified to sample

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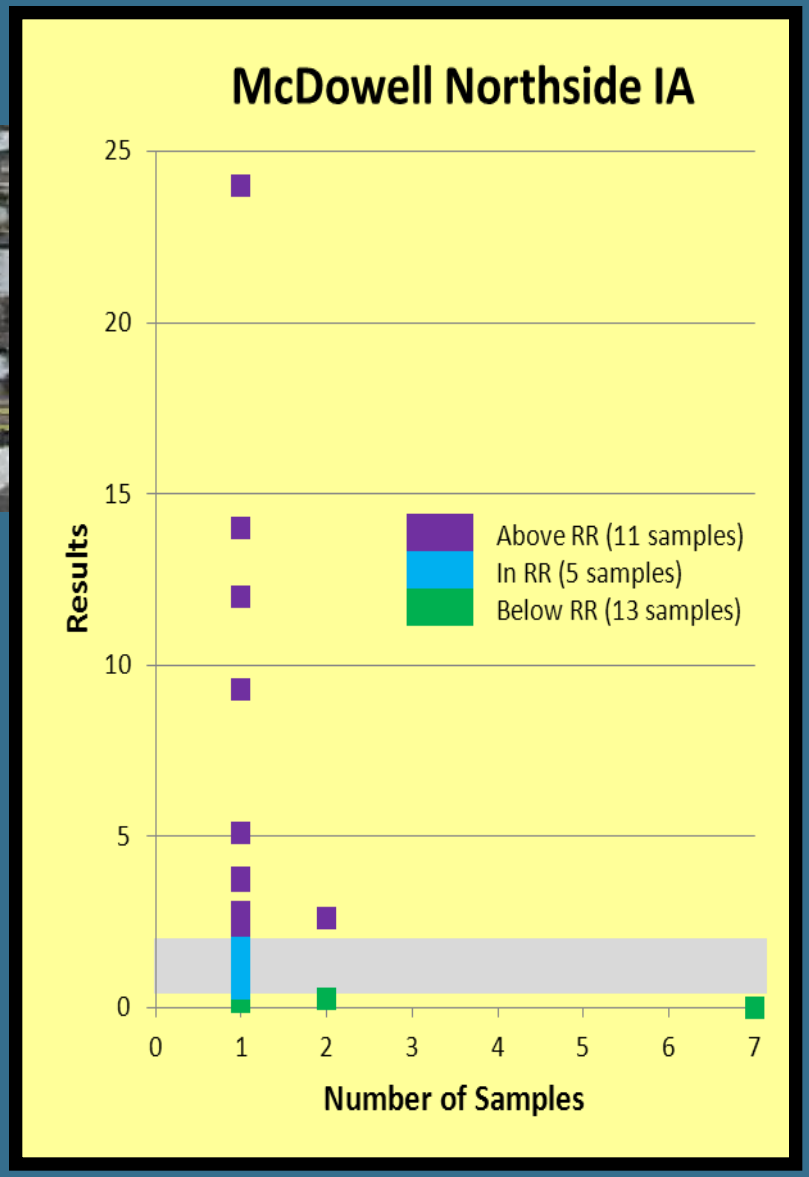

Schools – Indoor Air

- Pre-school: 20 samples over 2 seasons
  - 17 samples ND for TCE
  - 1 TCE marginally within protective risk range (mechanical room; slab opening?)
- Elementary/High School: 10 samples over 2 seasons
  - 5 samples ND for TCE
  - All TCE below protective risk range

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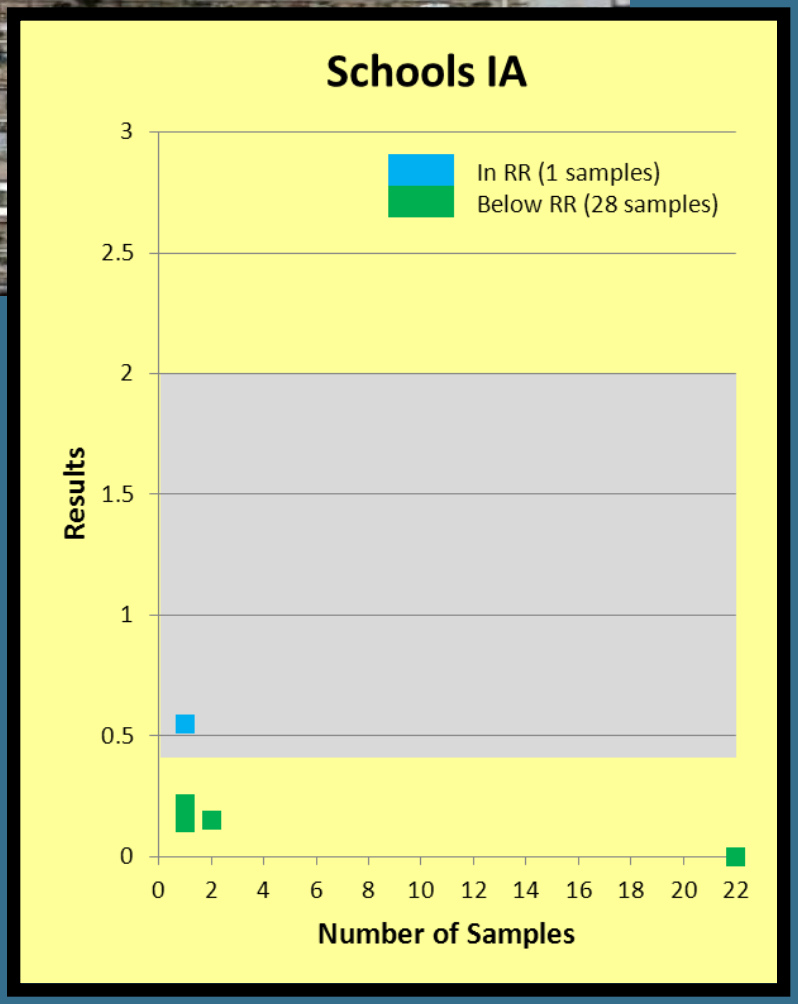

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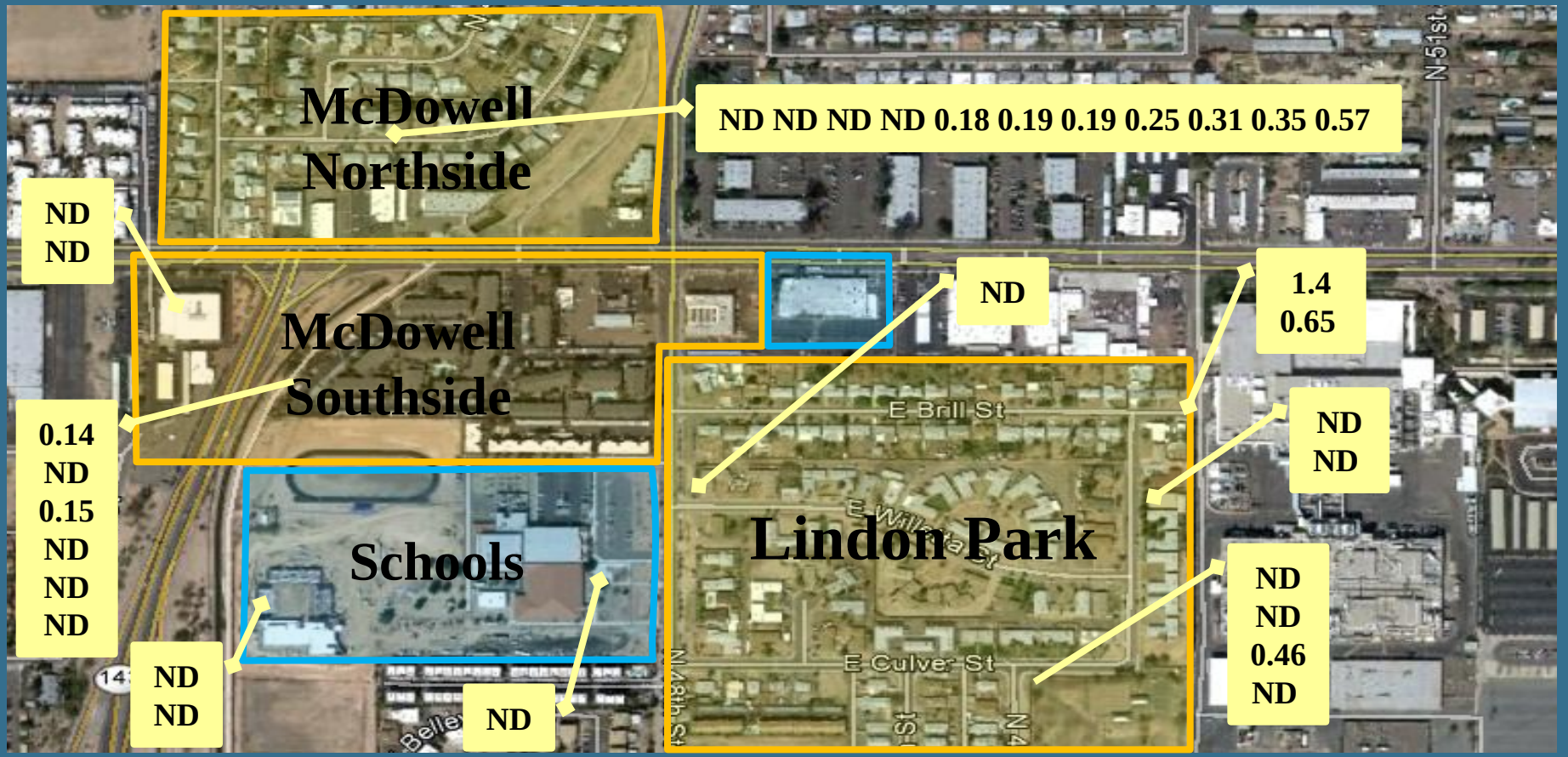
Outdoor Air Results



Summary

- Indoor air sampled – 75 residences:
  - TCE detected in 52; 23 ND
  - TCE range: ND – 24 µg/m^3
- Sub-slab soil gas sampled – 76 residences
  - TCE detected 69; 7 ND
  - TCE range: ND – 43,000 µg/m^3
- 17 buildings have been identified for mitigation using sub-slab depressurization system
  - 7 installations completed
- Outdoor air: ND – 1.4 µg/m^3

Conclusions & Comments

- TCE levels – either indoor air or sub-slab - prompted installation of sub-slab depressurization systems to address VI in some areas
- Another round of IA & SS sampling currently underway
  - additional residences added to sampling to expand area of investigation – based on revised soil gas screening levels

Thank You

QUESTIONS?